

REMARKS

INTRODUCTION

In accordance with the foregoing, claims 1-3 have been amended. Claims 1-10 are pending and under consideration.

CLAIM REJECTIONS

Claims 1-8 were rejected under 35 USC 103(a) as being unpatentable for obviousness over Miyazaki et al. (US 6,280,096) (hereinafter "Miyazaki") in view of any of Murden (US 2,126,912) (hereinafter "Murden"), Brawley (US 4,060,290) (hereinafter "Brawley"), Sawai et al. (US 5,577,323) (hereinafter "Sawai") or Yasuda et al. (US 5,261,159) (hereinafter "Yasuda").

Claims 9 and 10 were rejected under 35 USC 103(a) as being unpatentable for obviousness over Miyazaki in view of any of Murden, Brawley, Sawai or Yasuda, and further in view of Takemura et al. (JP 2003-097569) (hereinafter "Takemura").

Claims 1-10

Amended independent claim 1 recites: "...wherein the hub axle and the outer member have fiber flows with some thereof being cut off at and exposed to the raceway surface, and wherein the angle of so exposed fiber flows relative to at least one of the raceway surface in the hub axle and the raceway surfaces in the outer member is chosen to be equal to or smaller than 15°."

Amended independent claim 2 recites: "...wherein the hub axle has fiber flows with some thereof being cut off at and exposed to the raceway surface, and wherein the angle of so exposed fiber flows relative to the raceway surface in the hub axle is chosen to be equal to or smaller than 15°."

Amended independent claim 3 recites: "...wherein the outer member has fiber flows with some thereof being cut off at and exposed to the raceway surface, and wherein the angle of so exposed fiber flows relative to each of the raceway surfaces in the outer member is chosen to be equal to or smaller than 15°."

Support for the amendment to independent claims 1-3 may be found in the specification of the present application on page 12, line 20.

In the final Office Action, the Examiner maintains his previous grounds of rejection. Specifically, the Examiner relies on Murden, Brawley, Sawai and Yasuda to disclose bearing

races in which the angle of fiber flow relative to each raceway surface is parallel, i.e., is chosen to be smaller than 15°.

In the final Office Action, in the "Response to Arguments" section, the Examiner noted that in their previous form, the technical feature of the present invention where the fiber flows are cut off and the fiber flows are exposed to the raceway surfaces was not actually recited in the claims. As shown above, each of claims 1-3 has been amended to clearly recite this technical feature of the present invention.

As previously argued, it is respectfully submitted that each of the references relied on by the Examiner only disclose fiber flows extending parallel to the raceway surfaces such as discussed in the abstract of Yasuda. However, in contrast to claims 1-3, none of the relied upon references disclose or suggest fiber flows with some thereof being cut off at and exposed to the raceway surface, and that the angle of the exposed fiber flows relative to the raceway surface is chosen to be equal to or smaller than 15°.

More specifically, the references relied on by the Examiner disclose a forging method of raceway surfaces of a bearing ring having no flange. In such a bearing ring, metal flows can be adjusted to extend parallel to a surface shape of the raceway surface, and accordingly, fiber flows are hardly exposed on the raceway surface.

On the other, since an inner member 3 (reference numerals from the drawings of the subject application are added here for exemplary purposes only) has flange 5 extruding radially, metal flows deflect about 90° at a root portion of the flange, and as a result, fiber flows are exposed on the raceway surface. Since it is not easy to avoid an exposure of the fiber flows, claims 1-3 control the angle of fiber flow to be smaller than 15°. This technical feature of claims 1-3 provides that not only can the rolling life of the raceway surface be increased, but also the machining allowance of the raceway surface can be reduced and both the weight of material used and the length of time required to accomplish the machining process can be reduced.

Claims 4-10 depend on one of claims 1-3 and are therefore believed to be allowable for at least the foregoing reasons.

Withdrawal of the foregoing rejections is requested.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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